

ORIGINAL INSTRUCTIONS

# GB704SH-5 INSTALLATION TOOL



GAGE BILT TOOLS ARE AVAILABLE WORLDWIDE  
E-MAIL US FOR A DISTRIBUTOR NEAR YOU.

**GAGE BILT**  
 MADE in USA

44766 Centre Court, Clinton Twp., MI. 48038 USA  
Ph: +1 (586) 226-1500 Fax: +1 (586) 226-1505  
[solutions@gagebilt.com](mailto:solutions@gagebilt.com) / [www.gagebilt.com](http://www.gagebilt.com)

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## DECLARATION OF CONFORMITY

**MANUFACTURER:** Gage Bilt Inc. 44766 Centre Ct. Clinton Twp. Michigan U.S.A. +1(586-226-1500)

**WE DECLARE THAT THE EQUIPMENT SPECIFIED HEREIN CONFORMS TO THE FOLLOWING DIRECTIVES AND STANDARDS**

Machinery Directive 2006/42/EC

EN12100-1 & EN12100-2

EN792-1:2000+A1

**EU REPRESENTATIVE:** Edgar Hausmann GmbH Förster-Busch-Str. 10 D-34346 Hann. Münden Germany

**EQUIPMENT DESCRIPTION:** GB704SH-5 FASTENER INSTALLATION TOOL

This product specified above conforms to the above directives and standards.

SIGNATURE:



NAME: BRIAN LEIGH  
PRODUCT MANAGER  
CLINTON TWP., MI U.S.A.  
MAY 2010  
+1(586) 226-1500

### WARRANTY

Seller warrants that all goods covered by this catalog will conform to applicable specifications and will replace or repair, EXW our plant, any goods providing defective from faulty workmanship, or material, for 1 year from date of shipment.

Said warranty to remain in effect if, and only if, such goods are used in accordance with all instructions as to maintenance, operation and use, set forth in manuals and instruction sheets furnished by seller.

Sellers obligation under this warranty shall be limited to the repair or rework of the goods supplied or replacement thereof, at Seller's option, and in no case is to exceed the invoice value of said goods. Under no circumstances will the seller be liable for incidental or consequential damages or for damages incurred by the buyer or subsequent user in repairing or replacing defective goods or if the goods covered by this warranty are reworked or subjected to any type of additional processing.

This warranty is void if Seller is not notified in writing of any rejections or defects within 1 year after the receipt of the material by the customer.

**THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING MERCHANTABILITY.**

## DESCRIPTION



**⚠ WARNING:** Any other use is forbidden.

The GB704SH-5 series are pneumatic-hydraulic installation tools designed specifically for the efficient installation of blind fasteners. They can be operated in any position. They have a rated pull load of 3,300 lbs. (14.68 kN) with 90 psi (6.2 bar) air pressure at the air inlet.

The GB704SH-5 and GB704SR installation tools offer a unique “split” system providing the operator with an ergonomic tool with reduced hand held weight. The handle and head cylinder assembly when held in hand weighs 2.0 lbs. (.90 kg).

The GB704SH-5 series installation tools operate on 90 to 100 psi (6.2-6.9 bar) of air pressure, with 90 psi (6.2 bar) providing the maximum efficiency. At 90 psi (6.2 bar) of air pressure, the GB704SH-5 series does not exceed 81.5 dB(A) and consumes .30 SCF/cycle (8.50 L/cycle).

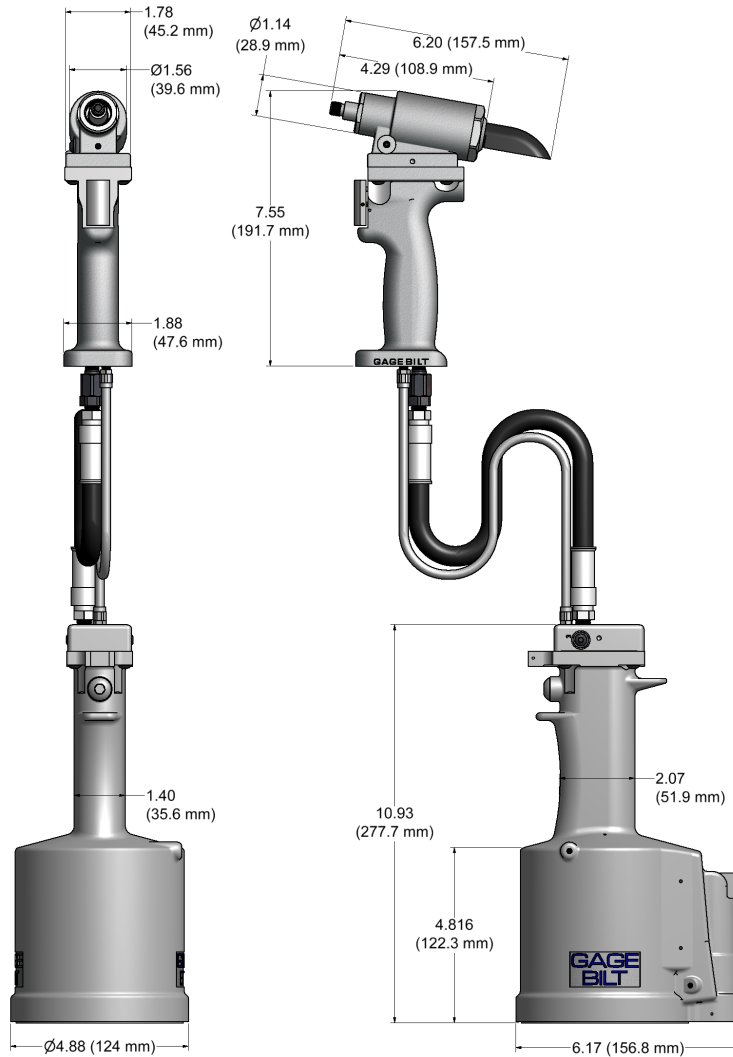
The air inlet is provided with 1/4-18 female pipe thread to accept the users air hose fitting.

NOSE ASSEMBLIES ARE NOT FURNISHED WITH TOOL AND MUST BE ORDERED SEPARATELY. (See nose assembly selection chart on pg. 20).

## ENVIRONMENTAL USE

**⚠ WARNING:** Do not operate in an explosive atmosphere.

The GB704SH-5 can be operated between 0°F - 118° (-17.8°C / 47.8°C)



## SPECIFICATIONS

Hand Held Weight	- 2.00 lbs. (.90 kg)
Air pressure req'd	- 90-100 psi. (6.2-6.7 bar)
Air consumption	- .30 SCF/cycle (8.50 L/cycle)
Hydraulic oil	- Automatic Transmission Oil, Dexron® III, or equivalent.
Setting stroke	- .600" (15.24 mm)
Noise level	- Less than 81.5 dB(A)
Rated pull load	- 3,300 lbs. (14.68 kN)
Vibration	- Tested– No Hazards Found

# DESCRIPTION OF FUNCTIONS

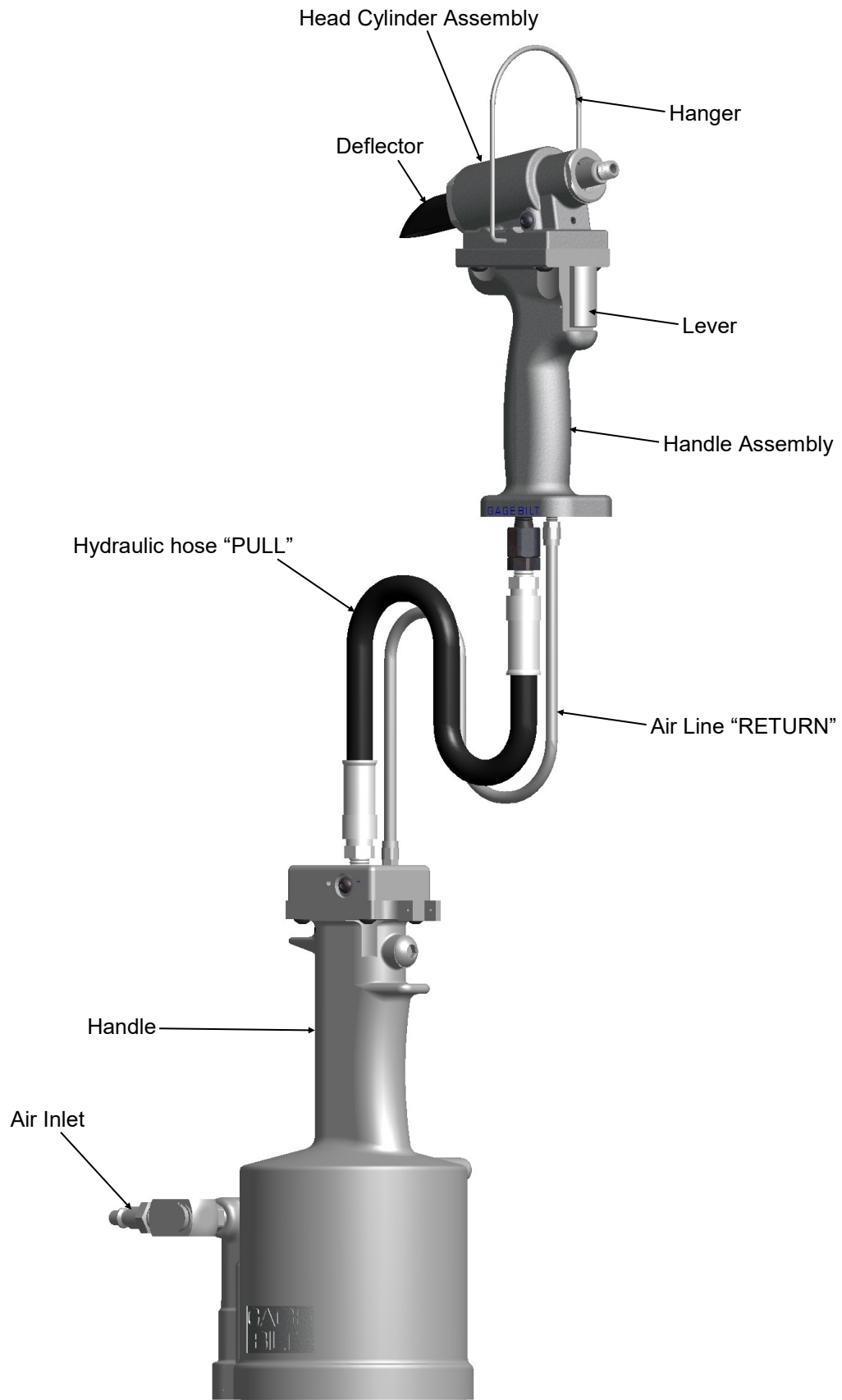


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## TERMS AND SYMBOLS

- Product complies with requirements



- Hearing protection and eye protection



- Read manual prior to using equipment



- Wear safety boots



**WARNINGS** - Must be understood to avoid severe personal injury.



**CAUTIONS** - show conditions that will damage equipment and/or structure.

**Notes** - are reminders of required procedures.

## GENERAL SAFETY RULES:

1. For multiple hazards, read and understand the safety instructions before installing, operating, repairing, maintaining, changing accessories on, or working near the assembly power tool for non-threaded mechanical fasteners.
2. Only qualified and trained operators shall install, adjust or use the assembly power tool for non threaded mechanical fasteners.
3. Do not modify this assembly power tool for non-threaded mechanical fasteners. Modifications can reduce effectiveness of safety measures and increase the risks to the operator.
4. Do not discard safety instructions; give them to the operator.
5. Do not use assembly power tool for non-threaded mechanical fasteners if it has been damaged.
6. Tools shall be inspected monthly to verify all ratings and markings required are legible. The employer/user shall contact the manufacturer to obtain replacement marking labels when necessary.

## ADDITIONAL SAFETY RULES FOR PNEUDRAULIC POWER TOOLS:

1. Air under pressure can cause severe injury.
2. Always shut off air supply, drain hose of air pressure and disconnect tool from air supply when not in use, before changing accessories or when making repairs.
3. Never direct air at yourself or anyone else.
4. Whipping hoses can cause severe injury. Always check for damage or loose hoses and fittings.
5. Cold air shall be directed away from hands.
6. Whenever universal twist couplings (claw couplings) are used, lock pins shall be installed and whip check safety cables shall be used to safeguard against possible hose-to-tool or hose-to-hose connection failure.
7. Do not exceed the maximum air pressure stated on the tool or manual.
8. Never carry an air tool by the hose.

## PROJECTILE HAZARDS:

1. Disconnect the tool from the energy source when changing inserted tools/nose assemblies or accessories.
2. Be aware that failure of the workpiece, accessories, or the inserted tool/nose assembly itself can generate high-velocity projectiles.
3. Always wear impact resistant eye protection during operation of the tool.
4. Ensure that the workpiece is securely fixed.
5. Check that the means of protection from ejection of fastener and/or stem is in place and operative (such as the deflector, pintail collection bottle or catcher bag).
6. Forcible ejection of the mandrel from the front of the nose assembly is possible.

## OPERATING HAZARDS:

1. Use of tool can expose the operator's hands to hazards, including crushing, impacts, cuts, abrasions and heat. Wear suitable gloves to protect hands.
2. Operators and maintenance personnel shall be physically able to handle the bulk, weight and power of the tool.
3. Hold the tool correctly; be ready to counteract normal or sudden movements and have both hands available.
4. Maintain a balanced body position and secure footing.
5. Release the start-and-stop device in the case of interruption of energy supply.
6. Use only lubricants recommended by the manufacturer.
7. Avoid unsuitable postures as it is likely for these positions not to allow counteracting of normal or unexpected movement of the tool.
8. If the tool is fixed to a suspension device, make sure that fixation is secure.
9. Beware of the risk of crushing or pinching if nose equipment is not fitted.
10. Due to the tool weight, it is recommended safety shoes be worn during operation.
11. It is recommended tool be operated not more than 50 out of every 60 minutes, where prolonged use is expected.

## REPETITIVE MOTIONS HAZARDS:

1. When using the tool, the operator can experience discomfort in the hands, arms, shoulders, neck or other parts of the body.
2. While using the tool, the operator should adopt a comfortable posture while maintaining a secure footing and avoiding awkward or off balanced postures. The operator should change posture during extended tasks; this can help avoid discomfort and fatigue.
3. If the operator experiences symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensations or stiffness, these warning signs should not be ignored. The operator should tell the employer and consult a qualified health professional.

## ACCESSORY HAZARDS:

1. Disconnect tool from energy supply before changing the nose assembly or accessory.
2. Use only sizes and types of accessories approved by the manufacturer. Do not use other types or sizes of accessories.

## WORKPLACE HAZARDS:

1. Slips, trips and falls are major causes of workplace injury. Be aware of slippery surfaces caused by use of tool and also of trip hazards caused by the air line or hydraulic hose.
2. Proceed with care in unfamiliar surroundings. There could be hidden hazards, such as electricity or other utility lines.
3. The tool is not intended for use in potentially explosive atmospheres and is not insulated against contact with electrical power.
4. Ensure that there are no electrical cables, gas pipes, etc., which can cause a hazard if damaged by the tool.

## NOISE HAZARDS:

1. Exposure to high noise levels can cause permanent, disabling hearing loss and other problems, such as tinnitus (ringing, buzzing, whistling or humming in the ears). Therefore, risk assessment and the implementation of appropriate controls for these hazards are essential.
2. Appropriate controls to reduce the risk may include actions such as damping materials to prevent workpieces from "ringing".
3. Always use hearing protection.
4. Operate and maintain the assembly power tool for non-threaded mechanical fasteners as recommended in the instruction handbook, to prevent an unnecessary increase in the noise level.
5. Select, maintain and replace the consumable/inserted tool as recommended in the instruction handbook, to prevent an unnecessary increase in noise.
6. If the power tool has a silencer, always ensure that it is in place and in good working order when the power tool is being operated.

## VIBRATION HAZARDS:

1. Exposure to vibration can cause disabling damage to the nerves and blood supply of the hands and arms.
2. Wear warm clothing when working in cold conditions and keep your hands warm and dry.
3. If you experience numbness, tingling, pain or whitening of the skin in your fingers or hands, stop using the assembly power tool for non-threaded mechanical fasteners, tell your employer and consult a physician.
4. Support the weight of the tool in a stand, tensioner or balancer, because a lighter grip can then be used to support the tool.

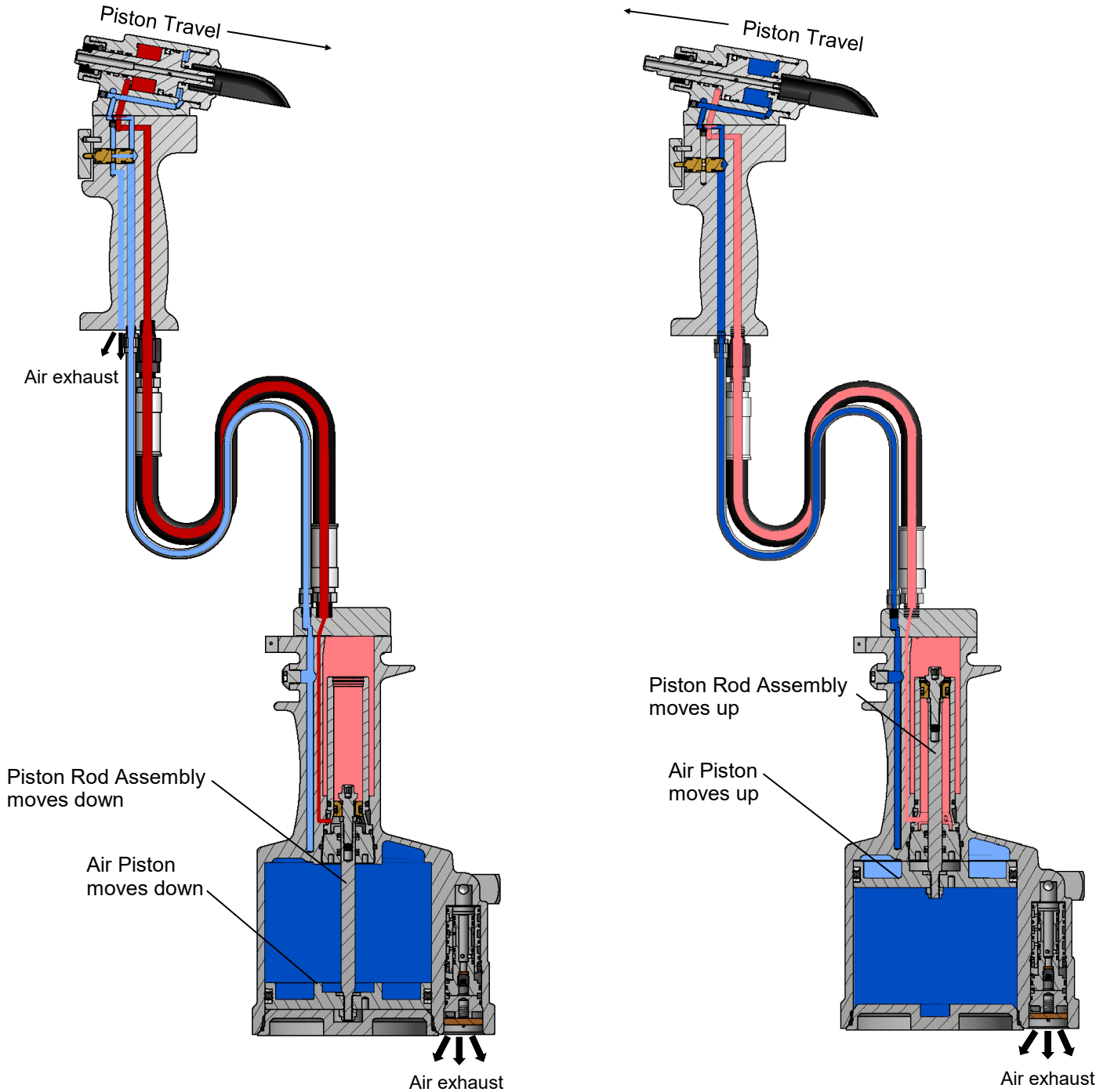
# PRINCIPLE OF OPERATION



When the lever is depressed, the pressurized air inside of the tool is released allowing spring pressure to move the valve spool assembly causing the air to be redirected. The air is directed to the top of the air piston assembly, moving it in a downward direction. The air below the air piston assembly is then directed through the valve sleeve and exhausted out of the bottom of the tool. Simultaneously, the piston rod assembly connected to the air piston assembly is also moving down, forcing hydraulic oil up and into the front side of the head cylinder assembly, causing the piston to move to the rear of the head cylinder assembly. The internal components of the attached nose assembly are also moving with the piston to start the fastener installation. When the fastener installation is completed, the lever is released. Air pressure is then built up inside of the handle assembly causing the valve spool assembly to return to its original position and reversing the sequence directing air pressure to the rear of the head cylinder assembly, causing the piston to move to the forward position.

## PULL Cycle

## RETURN Cycle



- Pressurized Oil
- Pressurized Air
- Unpressurized Oil
- Unpressurized Air

Images may not reflect actual tool

## HOW TO SET-UP THE GB704SH-5



- ⚠ WARNING:** Only qualified and trained operators shall install, adjust or use the assembly power tool for non-threaded mechanical fasteners.
- ⚠ WARNING:** Operator **MUST** read and understand all warnings and cautions.
- ⚠ WARNING:** It is required that eye protection, hearing protection and safety boots be worn at all times while handling this equipment.
- ⚠ WARNING:** The users or the user's employer must assess specific risks that could be present as a result after each use based on their application.
  - *Ensure there is adequate clearance for tool and operator's hands before proceeding. Keep fingers clear of any moving parts. Keep fingers clear from fasteners and installed materials. Severe personal injury may result.*
  - *Verify the air lines and/or hydraulic hoses are not a trip hazard.*
  - *Ensure that there are no electrical cables, gas pipes, etc., which can cause a hazard if damaged by the tool.*
- ⚠ WARNING:** Do not actuate fastener in the air. Personal injury from fastener ejecting may occur.
- ⚠ WARNING:** Air is exhausted from the bottom of the tool. Direct bottom of the tool (exhausted air) away from operator, other persons working in the vicinity, foreign matter and liquid.
- ⚠ WARNING:** Do not carry from hoses or use as a hammer.
- ⚠ WARNING:** Do not use in explosive atmosphere.
- ⚠ WARNING:** Ensure air hose is securely connected to avoid possible hose whipping.
- ⚠ WARNING:** Always disconnect air supply when tool is not in use to prevent accidental start-up.
- ⚠ WARNING:** Ensure there is adequate clearance for tool and operator hands.
- ⚠ WARNING:** Do not operate this tool without deflector, pintail catcher bag or pintail collection bottle in place.
- ⚠ CAUTION:** Do not use beyond the design intent.

The tool is shipped with a red plastic plug in the air inlet connector. The connector has a 1/4-18 female pipe thread to accept user air hose fitting. The tool comes with oil and is ready to use.

1. Remove red plastic shipping plug from Swivel (A-249) (air inlet) and screw in your quick disconnect (air) fitting.
2. Attach Deflector (200232) to rear of head cylinder assembly (704182). Rotate deflector (200232) away from operator or other people working in the vicinity.
3. Connect tool to air hose with 90 psi. (6.2 bar) using clean, dry air. 3/8" (9.52 mm) minimum diameter air line is recommended. Cycle tool five times by depressing and releasing lever (704345).
4. Disconnect air hose from tool.
5. Select proper nose assembly (see nose assembly selection chart on pg. 20 for more information). Screw collet onto piston and slide anvil over collet and secure with jam nut (70820). (See proper data sheet for further instructions).
6. Connect air supply.

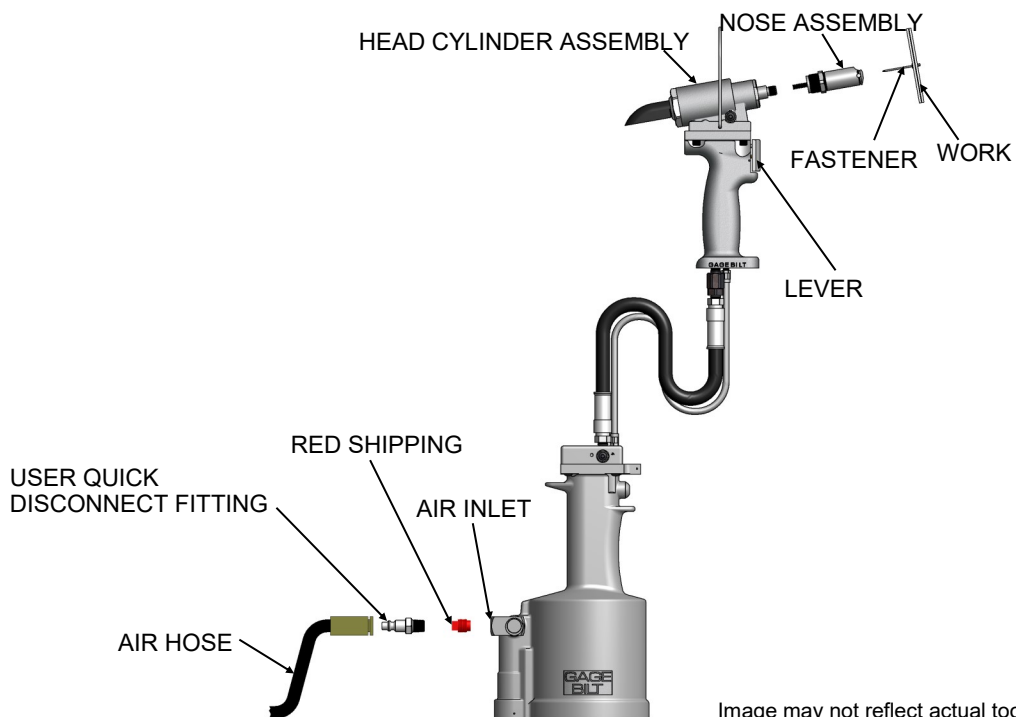


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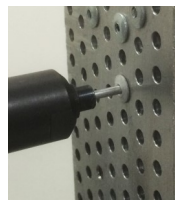
### Blind Fasteners

1. Insert fastener.

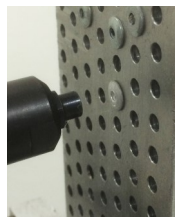


2. Insert fastener into nose assembly.

**Note:** Always hold tool so pulling head is perpendicular to surface of material in which fastener is being installed. Exert firm pressure against fastener during installation.



3. Press lever to start cycle.



4. Release lever as soon as fastener breaks.
5. Repeat steps 1-4.

Images may not reflect actual tool or fastener

## DAILY MAINTENANCE



- ⚠ WARNING:** Tool must be maintained in a safe working condition at all times and examined on a daily basis for damage or wear. Any repair must be done by qualified personnel trained on Gage Bilt procedures.
- ⚠ WARNING:** Excessive contact with hydraulic oil and lubricants must be avoided.
- ⚠ WARNING:** Maintenance personnel **MUST** read and understand all warnings and cautions.
- ⚠ WARNING:** Disconnect tool from its power source before performing maintenance, cleaning or when replacing worn or damaged components. Severe personal injury may occur if power source is not disconnected.
- ⚠ WARNING:** Read material Safety Data Sheet documents for all applicable materials

### Note:

- Dispose of hydraulic oil in accordance with manufacture safety datasheet.
- All tool materials are recyclable except rubber o'rings, seals and wipers.

The performance of any tool depends upon good maintenance practices. Following these minimal requirements daily will extend the life of your tool.

- \*Only use a clean dry air supply set at 90-100 p.s.i. (6.2-6.9 bar) Max. equipped with a filter-regulator to prevent wear.
- \* Check tool and nose assembly for damage. (Replace/Repair if necessary). See Overhaul (pgs. 14-16) for tool repair.
- \* Inspect hoses and couplings for wear, damage and leaks. (Replace/Repair if necessary).
- \* Verify that hydraulic hose fittings and couplings, air and electrical connections are secure. Tighten, Replace or Repair if necessary (See *hydraulic thread preparation below*).
- \* Cycle the tool several times to assure there are no leaks during use.
- \* Keep hydraulic system free of dirt.
- \* Proper care by operators is necessary in maintaining full productivity and reducing downtime.
- \* Keep nose assemblies, especially jaws, clean and free of chips and debris. Lube jaws and collet surfaces that jaws ride on with light machine oil on a daily basis.
- \* All Screwed End Caps, Base Covers, Air Fittings, Air Actuators, Screws and Nose Assemblies are to be examined at the end of each working shift to check that they are secure.
- \* For a complete overhaul, service tool kit (GB740SHTK) is recommended (see overhaul pgs. 14-16).

## WEEKLY MAINTENANCE

- Keep the hydraulic system full and free of air by using the air bleeder assembly (704153) on a weekly basis or as needed. (See Filling and Bleeding procedure pgs. 11-12).

SEE TROUBLESHOOTING (PG. 13) AND OVERHAUL (PGS. 14-16) FOR FURTHER GUIDANCE.

## HYDRAULIC THREAD PREPARATION

**IMPORTANT:** Be sure to use thread sealant on all hydraulic fittings, Loctite® 545 or equivalent or a non-hardening Teflon® thread compound such as Slic-tite®. Tighten until fitting feels snug and then continue to tighten 1/2 to 1 full turn. **CAUTION:** Over tightening can easily distort the threads. **DO NOT USE TEFLON® TAPE.** **CAUTION:** Teflon® tape is an excellent thread sealer, however, if it is not properly applied, pieces of Teflon® may enter the hydraulic system and cause malfunction or damage.

## CLEANING AND LUBRICATING PROCEDURE

Daily cleaning and lubrication of nose assembly will greatly reduce downtime and increase life of components. Using sewing machine oil, or an equivalent cleaner/lubricant, follow instructions below.

### CLEANING

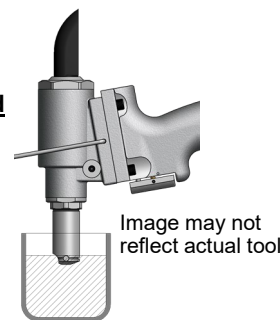
Clean nose assembly daily or as often as needed.

1. Dip into mineral spirits or similar solvent to clean jaws and wash away metal chips and debris. **DO NOT** allow jaws to come in contact with other solvents. **DO NOT** let jaws soak. Dry jaws immediately.
2. Disassemble nose assembly and use a sharp "pick" to remove embedded particles from grooves of jaws.

### LUBRICATING

Lubricate nose assembly after each cleaning and as often as needed.

1. Disconnect tool vacuum line (if equipped).
2. Point nose assembly into oil as shown.
3. Cycle tool 8-10 times and wipe dry.



## TORQUE SPECIFICATIONS

- Socket Head Cap Screws (402479) = 40 inch lbs. (4.52 Nm).
- Button Head Cap Screws (A-928) = 40 inch lbs. (4.52 Nm).
- Packing Plug (744118) = 45 foot lbs. (61 Nm).
- Flexlock Nut (400559) = 40 inch lbs. (4.52 Nm).
- End Cap (704112) = 45 foot lbs. (61 Nm).
- Button Head Cap Screws (402482) = 35-40 inch lbs. (3.95 - 4.52 Nm) (*Do NOT over-tighten*).

## FILLING PROCEDURE



- ⚠ WARNING:** Do not cycle tool without air bleeder assembly (704153), or the screw and stat-o-seal, installed in tool head. Severe personal injury could result.
- ⚠ WARNING:** Use CAUTION when removing screws, air bleeder assembly (704153) and fill bottle (745263). Hydraulic oil may be under pressure.
- ⚠ CAUTION:** Before filling handle assembly (744129), air piston assembly (744121) must be all the way down.
- ⚠ CAUTION:** When forcing piston rod assembly (744136) downward, with head cylinder assembly (704182) removed, hydraulic oil will eject forcibly from handle assembly (744129).
- ⚠ CAUTION:** When bleeding tool, ensure tubing is free from kinks or other obstructions.

### Note:

- Fill Bottle (745263) (sold separately) is required.

\* FILLING & BLEEDING VIDEO AVAILABLE AT: [http://www.gagebilt.com/rivet\\_tools\\_videos.php](http://www.gagebilt.com/rivet_tools_videos.php)

**IMPORTANT:** Be sure to use thread sealant on all hydraulic fittings, Loctite® 545 or equivalent or a non-hardening Teflon® thread compound such as Slic-tite®. Tighten until fitting feels snug and then continue to tighten 1/2 to 1 full turn. **CAUTION:** Over tightening can easily distort the threads. **DO NOT USE TEFLON® TAPE.** **CAUTION:** Teflon® tape is an excellent thread sealer, however, if it is not properly applied, pieces of Teflon® may enter the hydraulic system and cause malfunction or damage.

1. Put the piston rod wrench assembly (704149) into the top of handle assembly (744129), pushing down firmly until piston rod assembly (744136) is completely in the down position.
2. Fill oil passage and reservoir with Automatic Transmission Oil, Dexron® III or equivalent. The reservoir is the area surrounding the power cylinder (743131). When looking at the top of the handle assembly (744129), the oil passage is the hole that has a counterbore for o'ring (S832). Do not overfill causing oil to go in air passage hole.
3. Install gasket (704129), o'ring (S832), button head cap screws (A-928) and manifold-handle (744303) to handle assembly (744129) keeping hydraulic hose (A-122) towards plug (704313), located on handle assembly (744129), and torque button head cap screws (A-928) to 40 inch lbs. (4.52 Nm).
4. Push piston (704507) full forward. Install gasket (704129) and o'ring (S832) on handle assembly (700343). Assemble head cylinder assembly (704182) to handle assembly (700343) using button head cap screws (402479). Apply Loctite® 242 to all cap screws and torque to 40 inch lbs. (4.52 Nm).
5. Coil tool hoses up on bench and lay handle assembly (744129) down on side so that the hole marked #4 on manifold handle (744303) is to the top. Set head cylinder assembly (704182) over a small bucket or can. Completely fill up fill bottle (745263).
6. Remove button head cap screw (402482) and stat-o-seal (S572) from manifold-handle (744303) hole #4 and bleeder hole on head cylinder assembly (704182). Connect fill bottle (745263) to manifold-handle (744303) hole marked #4.
7. In one continuous squeeze force oil into manifold-handle (744303) until oil starts to flow from bleeder hole on head cylinder assembly (704182). While still squeezing the fill bottle (745263), use other hand to replace button head cap screw (402482) and stat-o-seal (S572) on head cylinder assembly (704182) and torque to 35-40 inch lbs. (3.95 - 4.52 Nm). Do not over tighten. This may require two people.
8. Remove fill bottle (745263) and replace stat-o-seal (S572) and button head cap screw (402482) on manifold-handle assembly (744303) and torque to 35-40 inch lbs. (3.95 - 4.52 Nm). Do not over tighten.
9. Proceed to bleeding instructions on next page to remove air from hydraulic system.

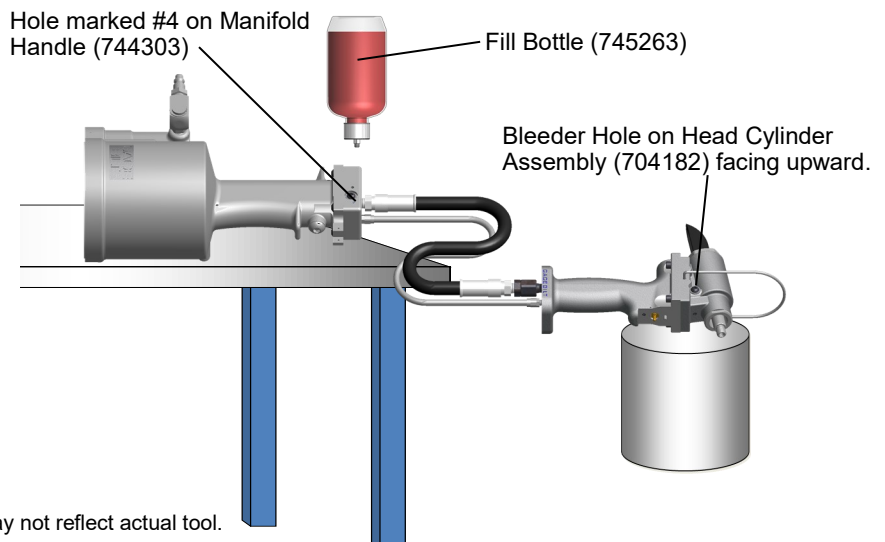
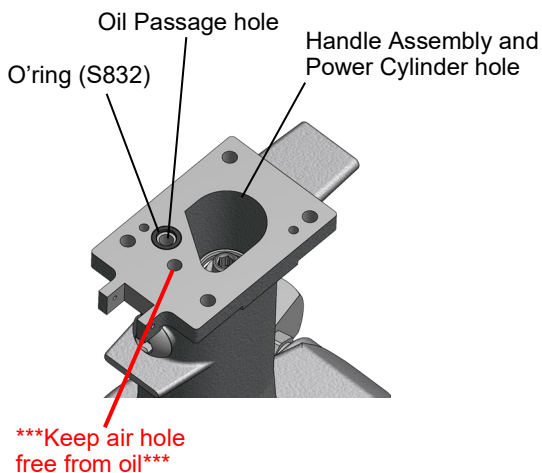


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## BLEEDING PROCEDURE:



- ⚠ WARNING:** Do not cycle tool without air bleeder assembly (704153), or the screw and stat-o-seal, installed in tool head. Severe personal injury could result.
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- ⚠ CAUTION:** When bleeding tool, ensure tubing is free from kinks or other obstructions.

### Note:

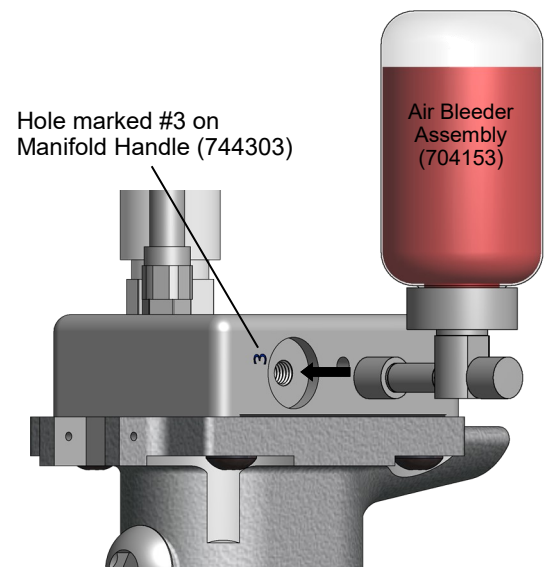
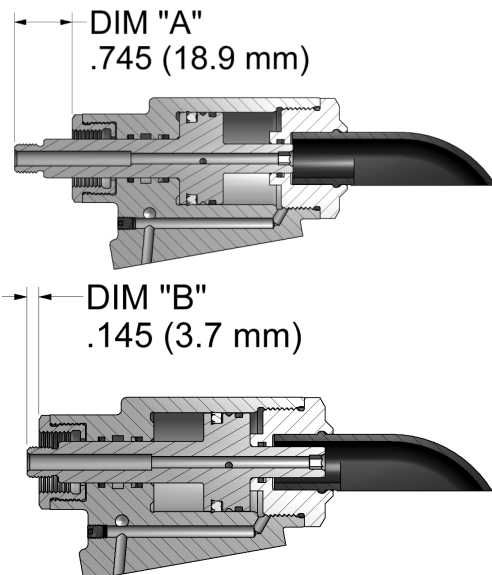
- Air Bleeder Assembly (704153) (sold separately) is required.

**\* FILLING & BLEEDING VIDEO AVAILABLE AT:** [http://www.gagebilt.com/rivet\\_tools\\_videos.php](http://www.gagebilt.com/rivet_tools_videos.php)

1. Stand handle assembly (744129) on floor, stretch hose and head cylinder assembly (704182) upward and lay flat on a table or bench. When bleeding tool always keep the head cylinder assembly (704182) higher than the handle assembly (744129).
2. Remove button head cap screw (402482) and stat-o-seal (S572) from manifold-handle (744303) hole marked #3. Attach air bleeder assembly (704153) to manifold-handle (744303) hole marked #3 in an upright position.
3. Connect the tool to air supply and cycle tool ten times holding the lever (704345) down for 2-3 seconds between cycles to remove any air from the tool.
4. Disconnect air supply. Remove air bleeder assembly (704153) from manifold-handle (744303) and replace with button head cap screw (402482) and stat-o-seal (S572) and torque to 35-40 inch lbs. (3.95 - 4.52 Nm). Do not over tighten.
5. Remove button head cap screw (402482) and stat-o-seal (S572) from bleeder hole on head cylinder assembly (704182) and attach air bleeder assembly (704153) in an upright position.
6. Connect air supply. Cycle tool ten times removing any air bubbles.
7. Disconnect air supply. Remove air bleeder assembly (704153) and replace button head cap screw (402482) and stat-o-seal (S572) and torque to 35-40 inch lbs. (3.95 - 4.52 Nm). Do not over tighten.
8. Connect air supply. Cycle tool ten times and check stroke of .600" (15.24 mm) using instructions a thru c and diagrams below. We recommend using dial calipers.
  - a. With the lever (704345) released, check dimension (A).
  - b. Holding lever (704345) check dimension (B).
  - c. Subtract dimension (B) from dimension (A). If stroke is not consistent within 1/64" (.396 mm) repeat bleeding procedure until stroke met.

For your consideration, Gage Bilt offers a depth gage (Pt.# A-1935) to help simplify and more accurately check your tool stroke. Please contact Gage Bilt for more information.

9. Disconnect air supply.
10. Re-attach lever and set screw to handle assembly (700343).



Images may not reflect actual tool.



Providing all maintenance conditions have been met, follow this systematic approach to diagnosis.

## 1. MORE THAN ONE PULL IS REQUIRED TO BREAK FASTENER.

- a) Tool needs to be bled. (See filling and bleeding procedures pgs. 11-12).
- b) Spring has fatigued, replace.
- c) Jaws are stripped or packed with chips. Clean or replace.
- d) Incorrect nose tip.

## 2. SLOW OR PARTIAL OPERATION WHEN THE LEVER (704345) IS DEPRESSED.

- a) Polyseal (A-1118) and o'rings (400789) on piston (704507) could be worn or damaged. Replace.
- b) Back-up ring (S908) and o'ring (A-201) on piston rod assembly (744136) could be worn or damaged. Replace.
- c) Muffler (744143) or filter inside valve spool assembly (744140) may be plugged with dirt. Clean thoroughly and back-blow with compressed air.
- d) Hole in metering screw in valve spool assembly (744140) may be blocked or damaged. Hole diameter should be .028" (.71 mm). Clear and size or replace.

## 3. NO OPERATION WHEN LEVER (704345) IS DEPRESSED.

- a) Tool seized due to mechanical failure or damaged parts.

## 4. OIL LEAKAGE.

- a) **DO NOT** OPERATE WITH OIL LEAKING FROM TOOL. HIGH PRESSURE OIL MAY CAUSE SEVERE PERSONAL INJURY.
- b) Any oil leaking externally should be traced to its source. An o'ring or seal that leaks must be replaced.

## 5. AIR BYPASS FROM VALVE HOUSING.

- a) If the spring (744144) breaks or dislodges, air will flow freely through the muffler (744143). Replace or reset. Valve spring installation tool (744251) is recommended.
- b) Check o'rings on valve sleeve (744138), valve spool assembly (744140), and valve plug (744142). If worn or damaged, replace. Valve sleeve removal tool (744152) is recommended.

## 6. FASTENER STEM JAMMED IN NOSE ASSEMBLY.

- a) Nose assembly components require service. **DISCONNECT AIR FROM TOOL**, remove the nose from the tool and disassemble. Replace worn or broken parts. Clean the surface the jaws ride on.
- b) Stems lodged side by side in the follower. Disassemble, remove stems, and reassemble.
- c) Incorrect follower.

## OVERHAUL



- ⚠ WARNING:** Only qualified and trained personnel shall perform overhaul.
- ⚠ WARNING:** Personnel must read and understand all warnings and cautions.
- ⚠ WARNING:** Tool must be maintained in a safe working condition at all times and examined on a daily basis for damage or wear. Any repair must be done by qualified personnel trained on Gage Bilt procedures.
- ⚠ WARNING:** Disconnect tool from its power source before performing overhaul. Severe personal injury may occur if power source is not disconnected.
- ⚠ WARNING:** Excessive contact with hydraulic oil and lubricants must be avoided (See safety data sheet documents for all applicable materials).
- ⚠ WARNING:** When operating, repairing or overhauling tool, wear approved eye protection. Do not look in front of tool or rear of tool when installing fastener.
- ⚠ WARNING:** Use only Gage Bilt hydraulic hoses and couplings, or equivalent, rated for 5,000 psi. (344.8 bar) working pressure.
- ⚠ WARNING:** Ensure air hose is securely connected to avoid possible hose whipping (Air Actuated Tools only).
- ⚠ WARNING:** Depress lever (704345) and disconnect from air, with the piston in the rear position, before overhaul. Severe personal injury may occur if air hose is not disconnected. **USE CAUTION** when forcing piston rod assembly downward with head cylinder removed. Hydraulic oil will eject forcibly from handle assembly.

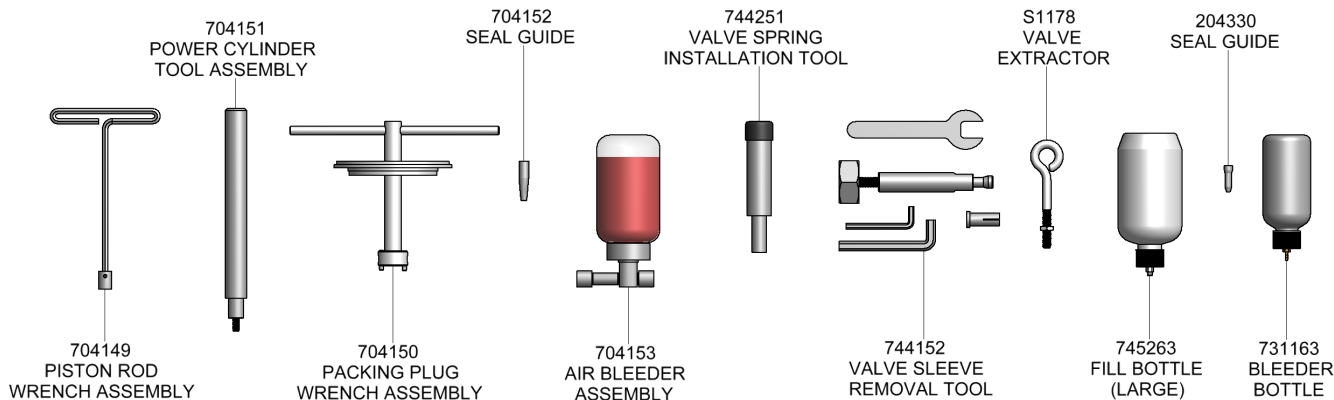
### Note:

- Dispose of hydraulic oil in accordance with manufacture safety datasheet.
- All tool materials are recyclable except rubber o'rings, seals and wipers.
- It is recommended that service tool kit (GB740SHTK) (see below) be used to facilitate overhaul.
- Use of **SERVICE KIT (704040)**, which contains a complete set of o'rings, back-up rings, screws, washers and gasket, can achieve a complete overhaul.

Perform overhaul in a clean, well lit area using care not to scratch or nick any smooth surface that comes in contact with an o'ring. Use of Lubriplate® (Gage Bilt part no. 402723) or other lubricant is recommended during reassembly to prevent tearing or distorting of o'rings.

The disassembly and re-assembly procedure can be accomplished by utilizing the instructions and parts lists on pgs. 14-18. Use extreme care during disassembly and re-assembly not to mar or nick any smooth surface that comes in contact with seals. Before installing seals, always apply a good lubricant, such as Lubriplate, to the surfaces.

Clean parts in mineral spirits or other o'ring compatible solvent being sure to clean o'ring grooves. Inspect components for scoring, excessive wear or damage.



### **GB740SHTK Service Tool Kit Includes:**

Part No.	Description
704149	Piston Rod Wrench Assembly
704151	Power Cylinder Tool Assembly
704150	Packing Plug Wrench Assembly
704152	Seal Guide
704153	Air Bleeder Assembly
744251	Valve Spring Installation Tool
744152	Valve Sleeve Removal Tool
S1178	Valve Extractor
745263	Fill Bottle (Large)
204330	Seal Guide
731163	Bleeder Bottle

## TOOL DISPOSAL

1. When tool life is met, drain hydraulic oil from tool and dispose of the hydraulic oil in accordance with the safety datasheet.
2. Disassemble tool and remove all rubber o'rings, seals, wipers and hydraulic hoses. All tool materials are recyclable except rubber o'rings, seals, wipers and hydraulic hoses. Dispose of rubber materials in accordance with the material safety datasheet.

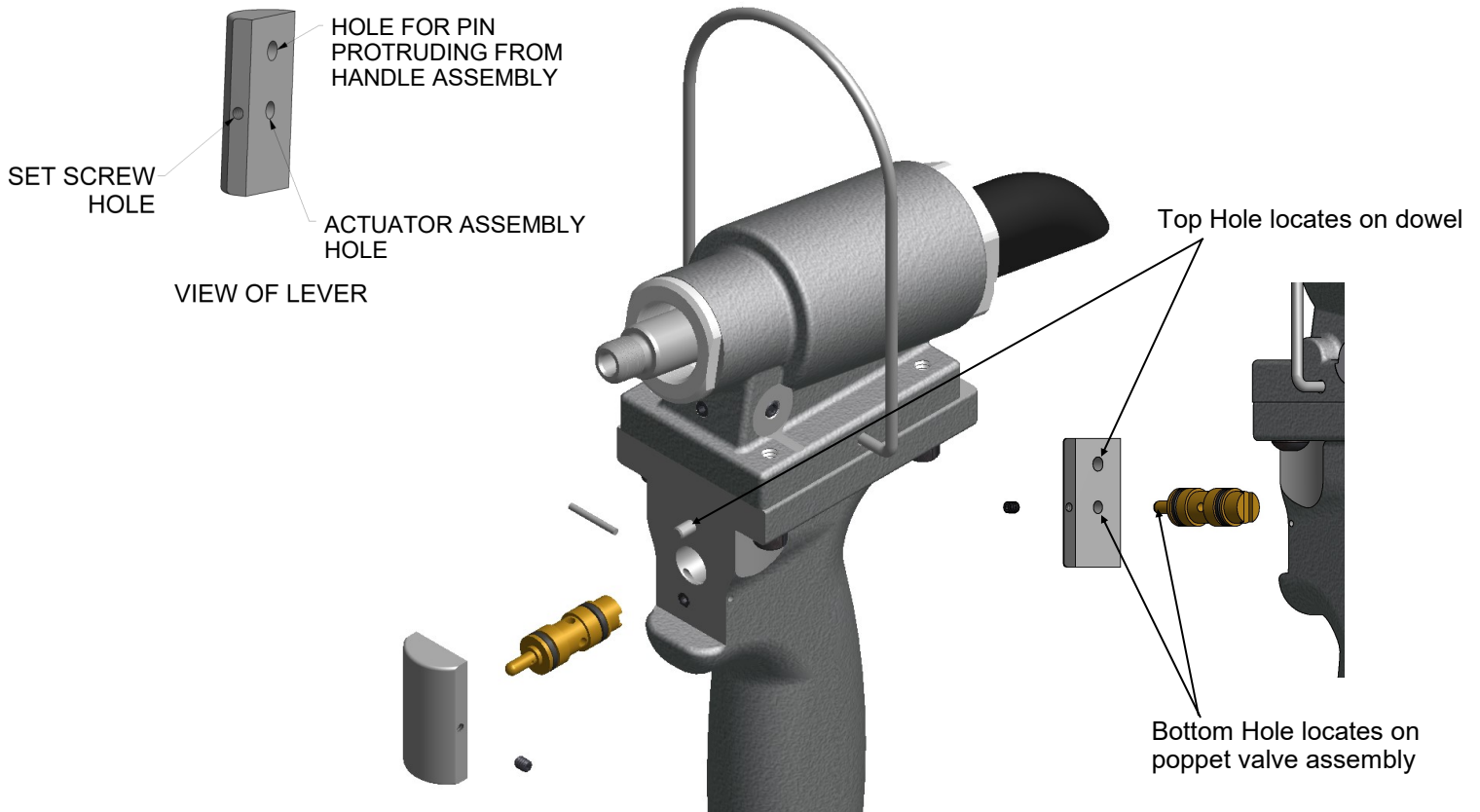


## POPPET VALVE

**⚠ WARNING:** Disconnect tool from its power source before poppet valve (A-648) removal or installation. Severe personal injury may occur if power source is not disconnected.

**⚠ CAUTION:** Use caution when removing the poppet valve (A-648) from the handle assembly (700343).

**⚠ CAUTION:** Ensure all parts are assembled properly and correctly fastened to the tool before using.

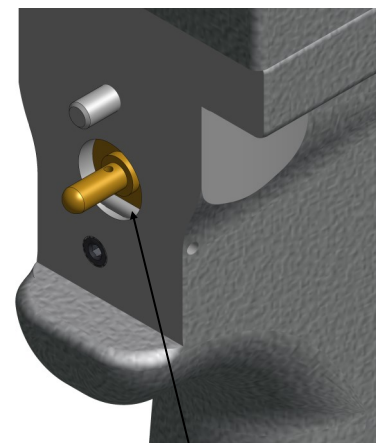


### REMOVING POPPET VALVE (A-648)

1. Remove set screw (401771) and lever (704345) from handle assembly (700343).
2. Remove pin (703543) from handle assembly (700343).
3. Pull poppet valve (A-648) from handle (700343). If unable to remove by hand, carefully remove using pliers, being careful not to compromise poppet valve (A-648).

### INSTALLING POPPET VALVE (A-648)

1. After replacing o'rings on poppet valve (A-648), insert poppet valve (A-648) into handle assembly (700343) (Note direction in image above) and push with thumb until it stops.
2. Reinsert pin (703543) into hole on handle assembly (700343).
3. Re-attach the lever (704345) and tighten set screw (401771).  
**Note:** View above shows proper orientation of lever.



Poppet valve assembly sits flush against pin diameter in hole



**⚠ WARNING:** Disconnect tool from its air source before disassembly.

## HEAD

1. Remove nose assembly and adapter from tool before attempting disassembly of head cylinder assembly (704182).
2. Remove end cap (704112).
3. Push against threaded end of piston (704507) to slide it out of head cylinder assembly (704182). Be careful not to damage threads or cause burrs on polished piston rod surface.

The re-assembly sequence is the opposite of disassembly. (See Filling and Bleeding procedures pgs. 11-12). Apply Loctite® #242 and torque the button head cap screws (402479) uniformly to 40 inch lbs. (4.52 Nm) to prevent leakage around the gasket (704129).

## HANDLE

To inspect air cylinder bore, remove base cover (744124). Any further disassembly will require removal of the manifold-handle (744303) first.

### For complete disassembly.

1. Remove base cover (744124).
2. Holding tool upright, remove four screws (A-928) and lift manifold-handle (744303) from handle assembly (744129) and set aside o'ring (S832) and gasket (704129).
3. Empty all hydraulic oil into an approved container and dispose of in accordance with the material safety datasheet.
4. Place piston rod wrench assembly (704149) down into top of power cylinder (743131) and into the hex of piston rod assembly (744136). While holding this piston rod wrench assembly (704149), remove flexlock nut (400559) using a 7/16" socket wrench or adjustable wrench. Still holding piston rod wrench assembly (704149), remove air piston assembly (744121) using packing plug wrench assembly (704150), by turning counterclockwise.
5. When air piston assembly (744121) is completely free from piston rod assembly (744136), tap or push on the piston rod wrench assembly (704149) to eject air piston assembly (744121) from bottom of handle assembly (744129).
6. After removal of air piston assembly (744121), slide piston rod assembly (744136) back up to the end of its travel. Using packing plug wrench assembly (704150) remove packing plug (744118).
7. With packing plug (744118) removed, power cylinder (743131) can be removed by pushing on power cylinder tool assembly (704151) when inserted into top of power cylinder (743131).

### To reassemble the handle assembly (744129).

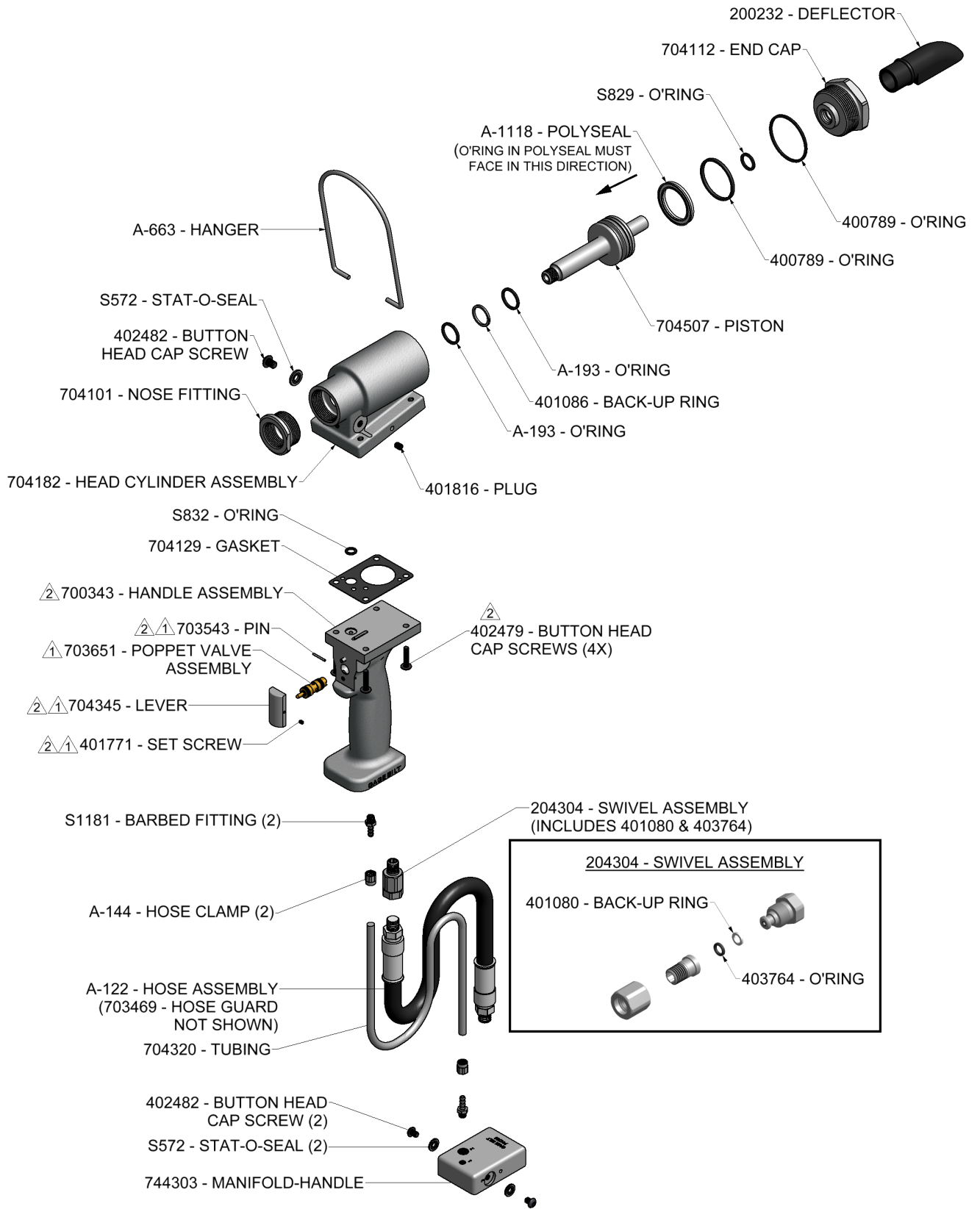
1. Reverse the above procedure, being certain that all o'rings are properly lubricated before installation. Torque packing plug (744118) to 45 foot lbs. (61 Nm).
2. Attach the seal guide (704152) to the piston rod assembly (744136) and tap the piston rod assembly (744136) through the packing plug (744118).
3. Attach air piston assembly (744121) and flexlock nut (400559). Torque flexlock nut to 40 inch lbs. (4.52 Nm).
4. Attach air piston assembly (744121) to piston rod assembly (744136).
5. With the piston rod in the down position, fill oil passage on top of handle assembly (744129) with automatic transmission oil, Dexron® III or equivalent. When looking at top of handle assembly (744129) the oil passage is the hole that has a counterbore for (S832) o'ring.
6. Replace gasket (704129) and o'ring (S832), just prior to replacing manifold-handle (744303). Torque all screws to manual specifications. (See Filling & Bleeding procedures pgs. 11-12) & (See torque specs. pg. 10).

## AIR VALVE

1. Remove pin (744149) and muffler (744143).
2. Insert valve extractor (S1178) into end of valve plug (744142) and pull it out.
3. Using the same procedure, pull out valve spool assembly (744140).
4. It should never be necessary to remove valve sleeve (744138) unless the ports in the valve sleeve (744138) are plugged from contaminated air. If ports are plugged, use needle nose pliers to grasp end of spring (744144), turning clockwise and pulling to dislodge from groove in casting. Valve spring installation tool (744251) will facilitate the proper installation of the spring (744144).
5. Valve sleeve (744138) can be pulled out using valve sleeve removal tool (744152).



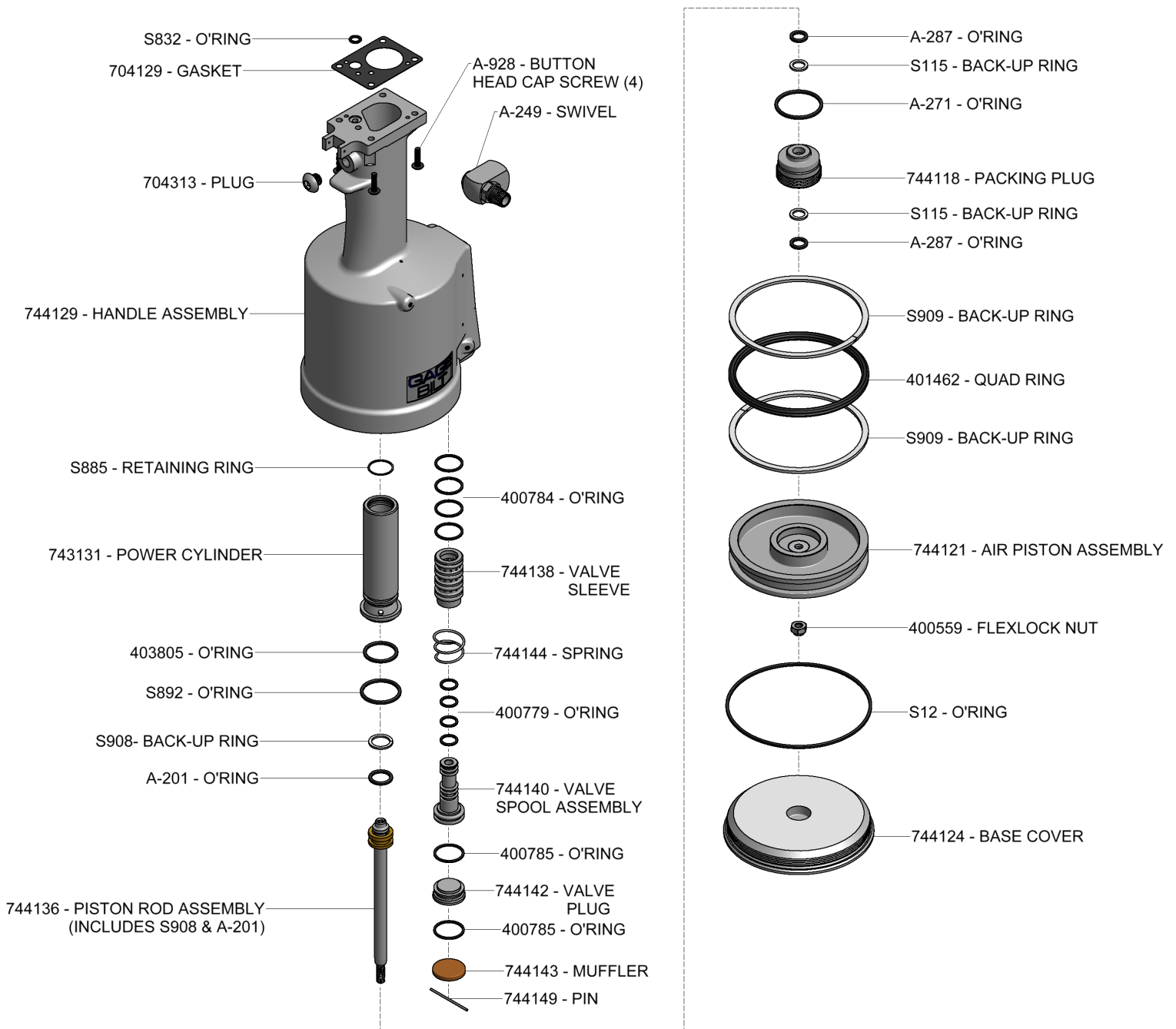
# PARTS LIST



1 AVAILABLE AS 703650 ACTUATOR ASSEMBLY (SOLD SEPARATELY)

2 AVAILABLE AS 700347 - HANDLE ASSEMBLY (SOLD SEPARATELY) (INCL: 700343 - HANDLE ASSEMBLY, 402479 BUTTON HEAD CAP SCREW, 704345 - LEVER, 703543 - PIN, & 401771 - SET SCREW)

# PARTS LIST



# DEXRON® III OIL SAFETY DATA



## FIRST AID MEASURES

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

**Skin:** No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

**Inhalation:** No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

**Note to Physicians:** In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

## FIRE

Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

## FLAMMABLE PROPERTIES:

**Flashpoint:** (Cleveland Open Cup) 178 °C (352 °F) Minimum

**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

## PROTECTION OF FIRE FIGHTERS:

**Fire Fighting Instructions:** This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

## ACCIDENTAL RELEASE MEASURES

**Protective Measures:** Eliminate all sources of ignition in vicinity of spilled material.

**Spill Management:** Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

## ECOLOGICAL INFORMATION

**Waste disposal:** In accordance with all environmental regulations applicable to your area.

**Spillage:** Prevent entry into drains, sewers and water course. Soak up with diatomaceous earth or other inert material. Store in appropriate container for disposal.

**Ecotoxicity:** This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

## HANDLING

**Precautionary Measures:** DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed. Keep out of the reach of children.

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

## DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations.

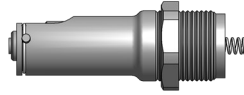
## GB704SH-5 ACCESSORIES



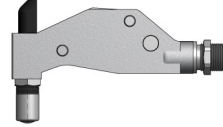
*Approved for use on Gage Bilt CE installation tools and/or other manufacturer's CE approved tools of similar design.  
(Sold Separately)*

### NOSE ASSEMBLY SELECTION CHART

**STRAIGHT**  
(Sold Separately)



**RIGHT ANGLE**  
(Sold Separately)



**OFFSET**  
(Sold Separately)



FASTENER	DIAMETER	STRAIGHT	RIGHT ANGLE (2)	OFFSET
CHERRYMAX®, CHERRYMAX® 'AB', MBC® LOCK CREATOR BACR15FR/FP, BACR15GF/GK	1/8	456MAX-701-17 (1)	456MAX-704-54RA (1)	456MAX-704-43OS (1)
	5/32	456MAX-704-35 (1)		
	3/16	456MAX-749-35 (3, 1)		
NUT PLATE RIVETS MS20600 SERIES CCR244/264/274 MS/9SP/PT BACR15CC/CF/DA/DR	3/32	3C-704A-16	3C-704-54RA	3C-704A-40OS
	1/8	4C-704A-16	4C-704-54RA	4C-704A-40OS
	5/32	5C-704A-16	5C-704-54RA	5C-704A-40OS
	3/16	6C-704A-16	6C-704-54RA	6C-704A-40OS
'A' CODE NAS1398A NAS1399A	3/32	3A-704A-16	3A-704-54RA	3A-704A-40OS
	1/8	4A-704A-16	4A-704-54RA	4A-704A-40OS
	5/32	5A-704A-16	5A-704-54RA	5A-704A-40OS
	3/16	6A-704A-16	6A-704-54RA	6A-704A-40OS
GROUND STUD M83454 BACS53B1EA1/2	8/32	GS8-704-16	GS8-704A-54RA	GS8-704-40OS
	10/32	GS10-704A-19	GS10-704-54RA	GS10-704A-40OS

CHERRYMAX® and MBC® are registered trademarks of Cherry Aerospace Fasteners.

### **GAGE BILT CERTIFIES THE GB704 WILL INSTALL THE ABOVE FASTENERS**

1) INSTALLS 1/8", 5/32", AND 3/16" DIAMETERS
2) RIGHT ANGLE NOSE ASSEMBLIES MAY REQUIRE MORE THAN ONE PULL
3) FRONT END EJECTING NOSE ASSEMBLY.

NOTE: THE LAST 2 DIGITS OF THE NOSE ASSEMBLY REPRESENTS THE LENGTH THE NOSE  
EXTENDS FROM THE TOOL I.E. -20 = 2.0 INCHES

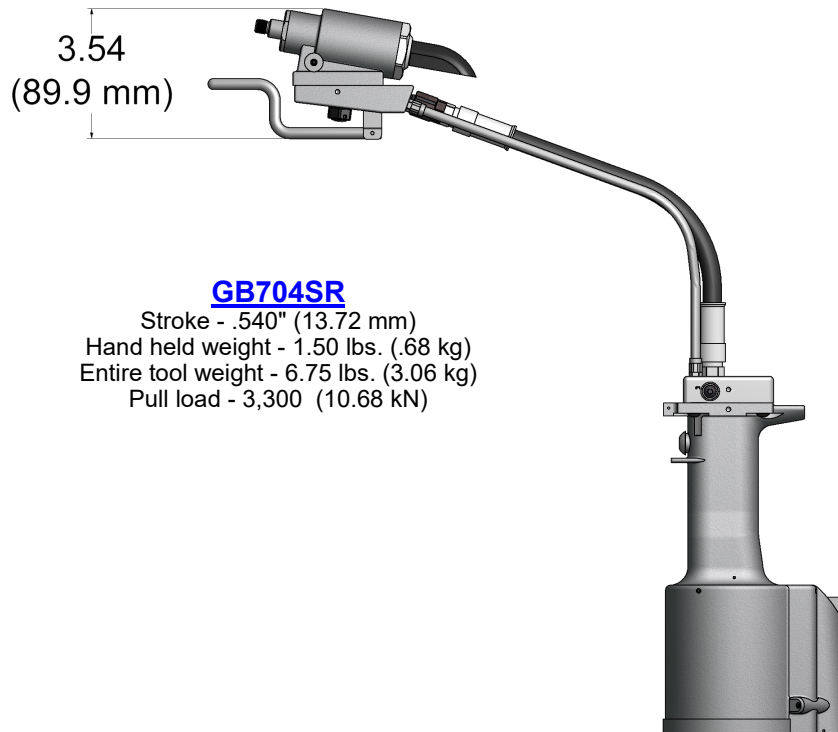
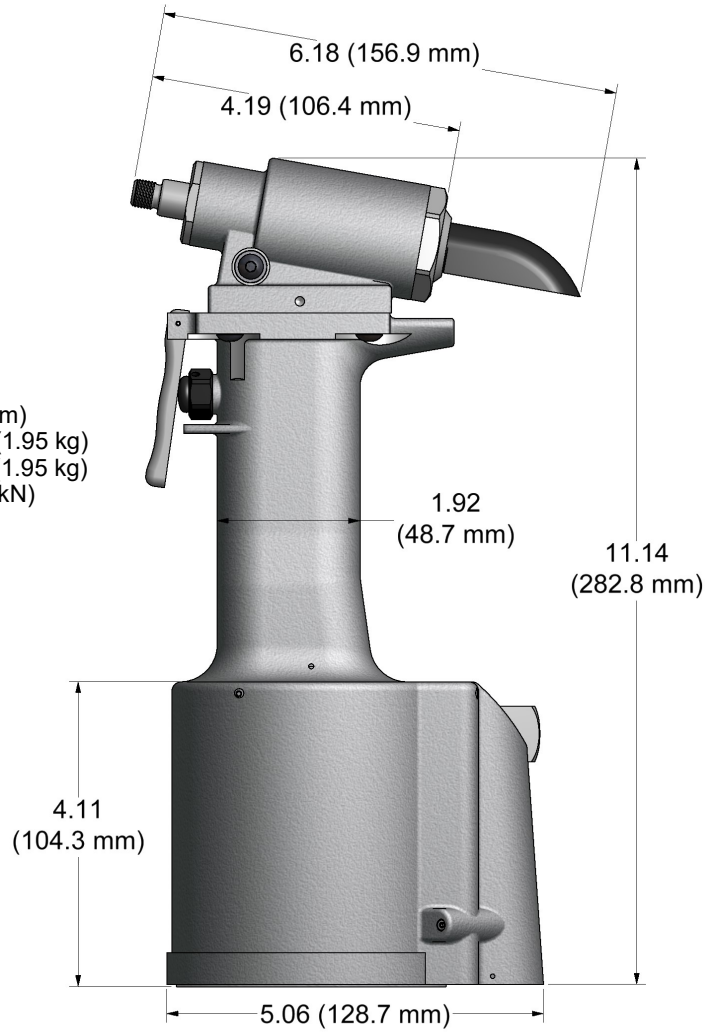
8/18

# Alternative Styles

(Sold Separately)



**GB704**  
Stroke - .540" (13.72 mm)  
Hand held weight - 4.30 lbs. (1.95 kg)  
Entire tool weight - 4.30 lbs. (1.95 kg)  
Pull load - 3,300 (14.68 kN)



**GB704SR**  
Stroke - .540" (13.72 mm)  
Hand held weight - 1.50 lbs. (.68 kg)  
Entire tool weight - 6.75 lbs. (3.06 kg)  
Pull load - 3,300 (10.68 kN)

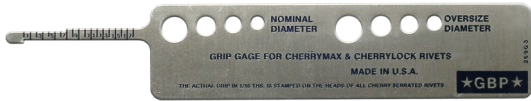
# Accessories Cont.



Approved for use on Gage Bilt CE installation tools and/or other manufacturer's CE approved tools of similar design.  
(Sold Separately)

## Grip Gage #269G3

For CHERRYMAX® and CHERRYLOCK® rivets  
(Sold Separately)



## Grip Gage #GB105093

For NAS LOCKBOLTS and blind fasteners  
(Sold Separately)



## Tool Stroke Depth Gage

#A-1935  
(Sold Separately)

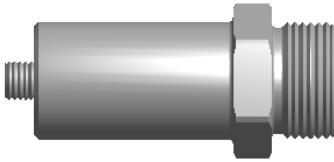


Image may not reflect actual gage.



## Adapter #704001

Adapts GB715 series, Olympic & Allfast® group 1 screw-on nose assemblies including Ground Stud nose assemblies on GB704 series, Cherry® 704 series, Allfast RV15G and Huck® 2013 tools.  
(Sold Separately)



## Extensions

These extensions help reach many restricted areas by increasing the overall length of the nose assembly. They fit directly on the GB704 Installation Tool and will accept any nose assembly for Cherrymax® and High Clinch rivets.

(Sold Separately)



L	Part Number	Equivalent to:
2"	704002	704A12-2
4"	704004	704A12-4
6"	704006	704A12-6
12"	704012	704A12-12

## Catcher Bag-Stem

#704214  
(Sold Separately)



## Fill Bottle

#745263  
(Sold Separately)



## Air Bleeder Assembly

#704153  
(Sold Separately)





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# Riveter Kits Available

(Sold Separately)



Gage Bilt offers a wide selection of standard and custom kits tailored to your needs. Contact us for more information.

## GB704RK Riveter Kit

CE  
Approved



## GB704RK-1 Riveter Kit

CE  
Approved



## Split Riveter Tool Backpacks

For 5ft hose Split System Tools.

(Sold Separately)

**SPLIT-SYSTEM TOOL BACKPACKS**

- Backpack fits any split-system tool
- Reduces weight of tool by up to **70%**
- Reduces User Fatigue
- Increases Productivity
- Increases User Mobility
- Ergonomic
- Comfortable

**INSIDE VIEW**

**OPTIONAL**  
Vacuum System for FOD Control

DEXRON® IS A REGISTERED TRADEMARK OF GENERAL MOTORS CORPORATION. LUBRIPLATE® IS A REGISTERED TRADEMARK OF FISKE BROTHERS REFINING. LOCTITE® IS A REGISTERED TRADEMARK OF HENKEL CORPORATION. TEFLON® IS A REGISTERED TRADEMARK OF E.I. DUPONT DE NEMOURS & CO. SLIC-TITE® IS A REGISTERED TRADEMARK LA-CO INDUSTRIES INC. CHERRY® & CHERRYMAX® ARE REGISTERED TRADEMARKS OF CHERRY AEROSPACE. HUCK® IS A REGISTERED TRADEMARK OF HOWMET AEROSPACE. ALLFAST® IS A REGISTERED TRADEMARK OF ALLFAST FASTENING SYSTEMS.